Day One: Second Workshop on Systems-Driven Approach for Inverter R&D
Radisson Cross Key Hotel, Baltimore, MD, October 13-14, 2004
Preliminary Agenda

Sponsors: DOE Office of Energy Efficiency and Renewable Energy, Solar Energy Technologies Program
DOE Office of Electric Transmission and Distribution, Energy Storage Program

Objective: This is a follow-up to the first systems-driven approach workshop on inverter R&D held in April 2003. Participants will use a similar methodology to explore in greater depth the ***next generation of high-tech inverters*** for PV and energy storage technologies and synergistic applications. Your insights will guide the "High-Tech Inverter R&D 5-Year Strategies" document that will be completed by the beginning of fiscal year 2005, a key by-product of this workshop.

The second day of the workshop will examine inverter-related standards, codes, and certifications currently available or being drafted and will include discussions of the economic and technical impacts on inverter designs today. Needs for future standards, codes, and certification, along with inputs from the standards writing groups and the inverter/systems industry, will be discussed and prioritized.

Day 1: Inverter Technology Discussion

7:30 – 8:00 Sign-in, Breakfast Buffet

8:00 – 8:15 Welcome, Outline of Workshop Goals, Guidelines for the Workshop (Ray Sutula, DOE)

8:15 – 8:30 Introduction to Energy Storage Inverter Issues and Ongoing Work (Imre Gyuk)

8:30 – 8:45 The Systems-Driven Approach Status and Update (Chris Cameron, Sandia)

8:45 – 9:00 High-Tech Inverter Research & Development: A Five-Year Strategy (Ward Bower, Sandia)

9:00 – 9:45 High-Reliability Inverter Initiative Status Update

- 9:00 -- 9:15 Xantrex
- 9:15 – 9:30 GE
- 9:30 – 9:45 SatCon

9:45 – 10:15 Questions, Answers, Discussion (Moderator)

10:15 – 10:30 Break

10:30 – 12:15 High-Tech Inverter Issues and Needs

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10:30 – 10:50 Capacitor Technologies: A Comparison of Competing Options (Bruce Tuttle, Sandia)

10:50 – 11:10 Thermal Management and Packaging Techniques and Advances (Clayton Hamilton, Heliotronics)

11:10 – 11:30 Surge Protection for Inverters, Status and Needs (Michael Ropp, South Dakota University)

11:30 – 11:50 Communications and Controls for Inverters (Frank Goodman, EPRI)

11:50 – 12:15 Power Electronics (Jeff Casady, SemiSouth)

12:15 – 12:30 Questions and Answers (Moderator)

12:30 – 1:30 Lunch, Buffet Style

1:30 – 3:15 Parallel Breakout Sessions A through C for Status, Goals, and Needs of These Parameters:

- Efficiency
- Reliability/durability
- Cost
- Maintenance/maintainability
- Manufacturability
- Cross-technology application

Parallel Breakout Session A – Capacitor/Component Technologies
Parallel Breakout Session B – Surge Protection, Thermal Management, and Packaging
Parallel Breakout Session C – Power Electronics, Communications, and Controls

2:30 – 2:45 Break

2:45 – 3:30 Resume Parallel Breakout Sessions

3:30 – 4:15 Session Summaries (Various Moderators)

4:15 – 5:15 Summary Presentations And Discussions--Prioritization, Sequence, Critical Paths

5:15 – 6:45 Reception

Day Two: Second Workshop on Systems-Driven Approach for Inverter R&D
Codes and Standards Development
Preliminary Agenda

Day 2: Codes, Standards and Applications in the Real World

7:30 – 8:15 Breakfast Buffet

8:15 – 8:30 Review of Day 1, Questions/Answers/Parking Lot (Moderator)

8:30 – 8:55 National Electrical Codes and Other Standards in the Real World – Horror Stories, Successes, and Looking Forward to 2005 (John Wiles, SWTDI)

8:55 – 9:15 Overview of UL1741 Changes and Additions (Tim Zgonena, Underwriters Laboratories)

9:15 – 9:45 Review of IEEE Standards for Inverters: IEEE 1547.1 Test Procedures, IEEE 1547.2, IEEE 1547.3 Communications Protocol (Tom Basso, NREL)

9:45 – 10:00 Break

10:00 – 10:30 Review of IEEE Standards for Inverters, Continued

10:30 - 10:50 Overview of IEC Inverter Standards (Christoph Panhuber, Fronius)

10:50 – 11:10 Certification of Inverters: Does It Make Sense? (Chuck Whitaker, Endecon Engineering)

11:10 – 11:30 DUIT Multiple Inverter Testing Results (Susan Horgan, Distributed Utility Associates)

11:30 – 11:50 State-By-State Rules: California Rule 21- Does It Take Precedence Over Interconnect Standards? (Bill Brooks, Endecon Engineering)

11:50 – 1:00 Lunch

1:00 – 3:00 Parallel Breakout Session A–UL Standards Related Issues and Needs
Parallel Breakout Session B–Utility Related Standards Issues and Needs
Parallel Breakout Session C–Inverter Manufacturers Issues and Needs

3:00 – 3:15 Break

3:15 – 3:45 Session Summaries (Various Moderators)

3:45 – 4:30 Summary Presentations And Discussions–Priorities, Sequence, Critical Paths

4:30 – 5:00 What's Next? Working Groups, Review of Outputs, Coordination with other Stakeholders.